****DRAFT****

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: KellyAnn Gorman **Date:** 20 October 2004 **PNVG Code: WPNH**

Potential Natural Vegetation Group: Conifer Northern Hardwood Forest

Geographic Area: Appalachian Mountains south to northern GA. Also New England, NY, and the northern parts of PA, MI, and WI.

Description: Mesic to somewhat xeric sites over a broad range of topographic conditions including ravines, valley flats, sheltered low ridges, open north-facing slopes at high elevations, and steep, exposed slopes. Soils are usually acidic and species diversity tends to be low. The characteristic species are eastern white pine (*Pinus strobus*) and eastern hemlock (*Tsuga canadensis*); this includes both pine-hemlock forest and pine-hemlock-hardwood forest. Dominant associates include sugar maple (*Acer saccharum*), yellow birch (*Betula allegheniensis*), and northern red oak (*Quercus rubra*); other common associates include beech (*Fagus grandifolia*), striped maple (*A. pensylvanicum*), red maple (*A. rubrum*), mountain maple (*A. spicatum*), white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), Canada yew (*Taxus canadensis*), basswood (*Tilia americana*), and American elm (*Ulmus americana*).

Fire Regime Description: Fire Regime Group V. Fire disturbances are severe and affect large patch sizes but are very rare, at 300 to 1,000-year intervals; wind events are much more frequent. Other disturbances, including windthrow, insect attack, and ice storms, usually on a single-tree-gap scale, are more important than fire although they may have pre-disposed the forest to fire during drought conditions.

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: post replacement	10	Young stand characterized by white pine, yellow birch, red maple, and white ash; less than 25 yrs old
B: mid-seral closed	30	Intermediate stand dominated by white pine, yellow birch, sugar maple, and northern red oak; 25 - 100 yrs old
E: late- seral closed	60	Mature stand dominated by white pine, hemlock, sugar maple, and yellow birch; over 100 yrs old
Total	100	

*Formal codes for classes A-E are: AESP, BMSC, CMSO, DLSO, and ELSC, respectively.

Fire Frequency and Severity

Fire Severity	Fire Frequency (yrs)	Probability	Percent, All Fires	Description
Replacement Fire	650	.0015	94	
Non-Replacement Fire	10,000	.0001	6	
All Fire Frequency*	650	.0016	100	

*All Fire Probability = sum of replacement fire and non-replacement fire probabilities. All Fire Frequency = inverse of all fire probability (previous calculation).

References

Brown, James K.; Smith, Jane Kapler, eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.

Kuchler, A.W. 1964. Northern hardwoods (*Acer-Betula-Fagus-Tsuga*). #106 *In:* Manual to accompany the map Potential Natural Vegetation of the United States. New York, NY: The American Geographical Society. 156 p.

Loehle, Craig. 1988. Tree life histories: the roles of defenses. Canadian Journal of Forest Research 18: 209-222.

Schmidt, Kirsten M, Menakis, James P., Hardy, Colin C., Hann, Wendel J., Bunnell, David L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. Gen. Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.

Southern Appalachian Man and the Biosphere. 1996. The Southern Appalachian Assessment Terrestrial Technical Report. Report 5 of 5. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region.

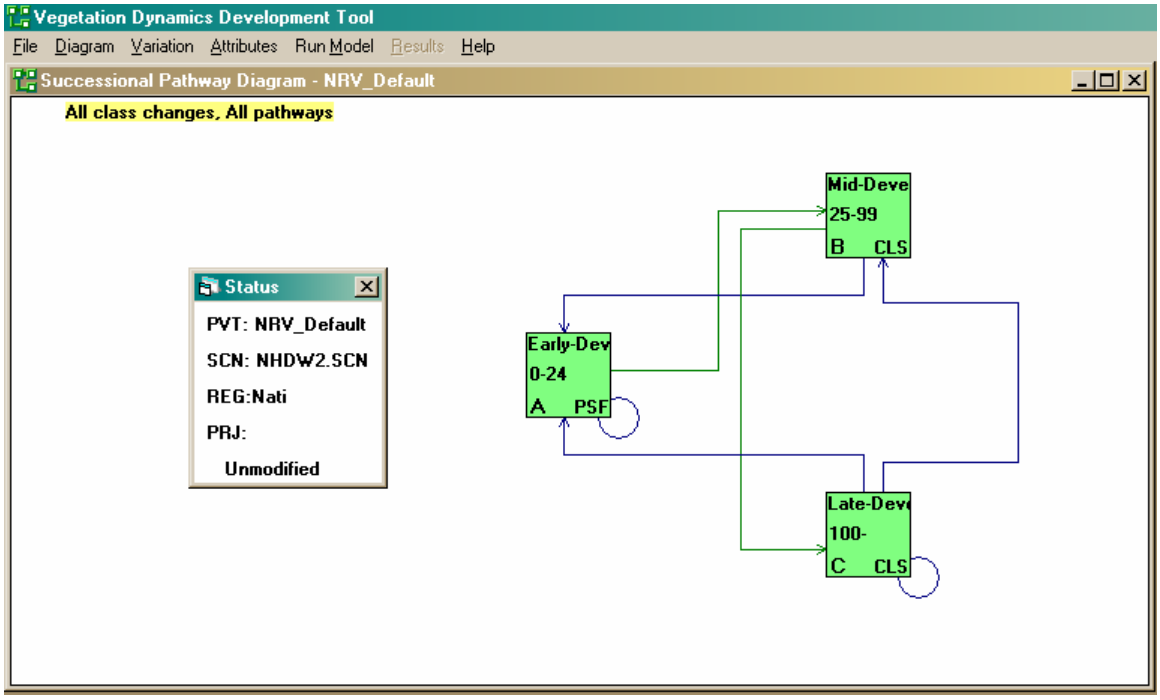
US Department of Agriculture, Forest Service, Southern Region. 1997. Montane and allied spruce and spruce-fir forest old-growth forest community. Pp. 100-102 *in*: Guidance for conserving and restoring old-growth forest communities in National Forests in the Southern Region: Report of the Region 8 Old-Growth Team. Forestry Report R8-FR 62. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region. 120 p.

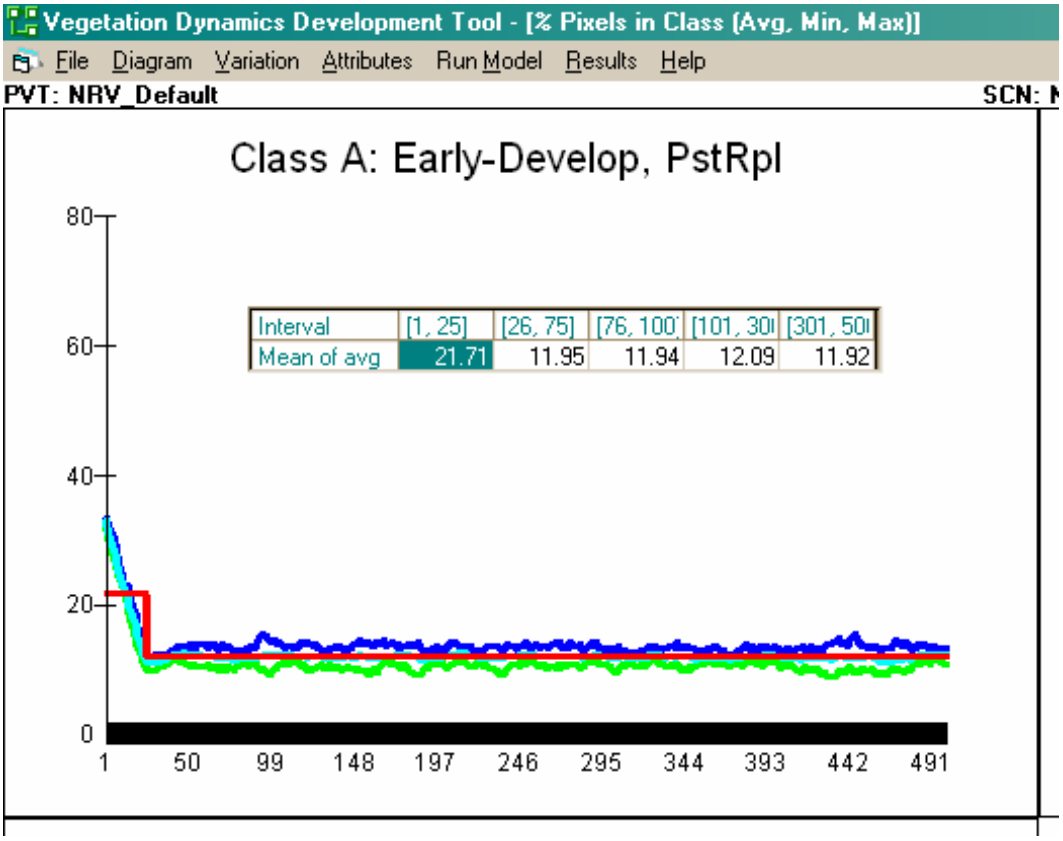
U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online 12 February 2004]. Available: http://www.fs.fed.us/database/feis/.

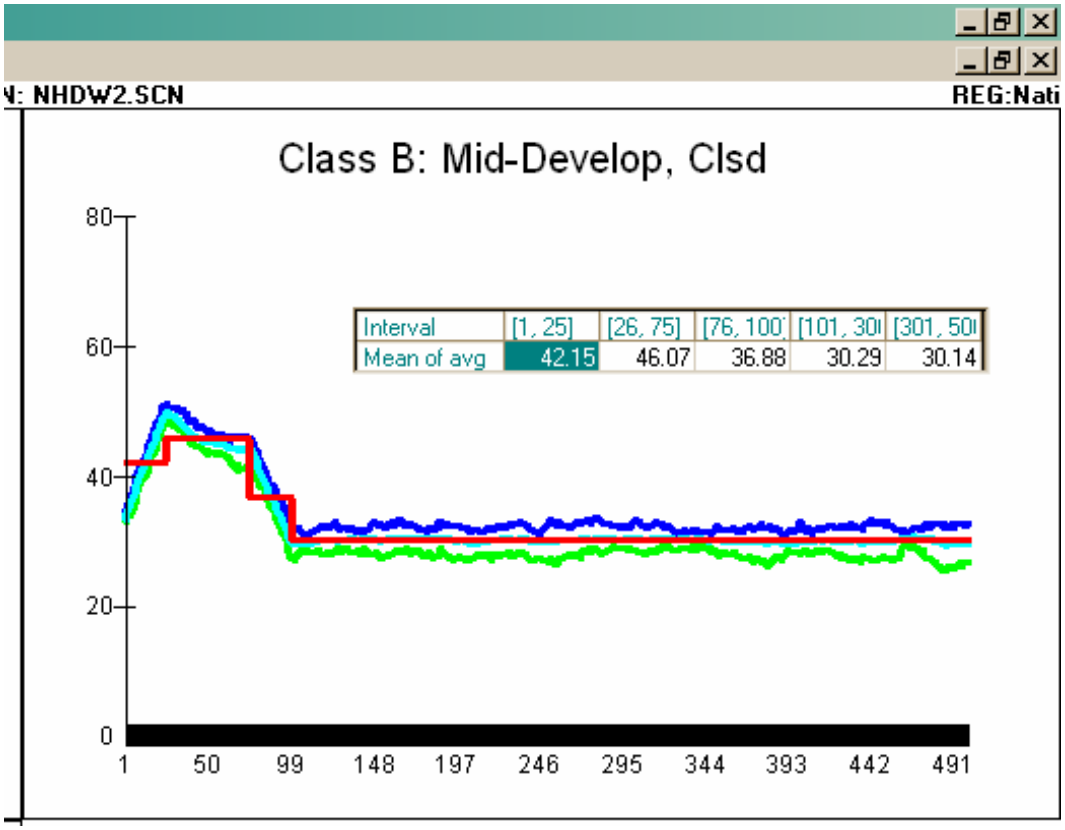
PERSONAL COMMUNICATION (if applicable):

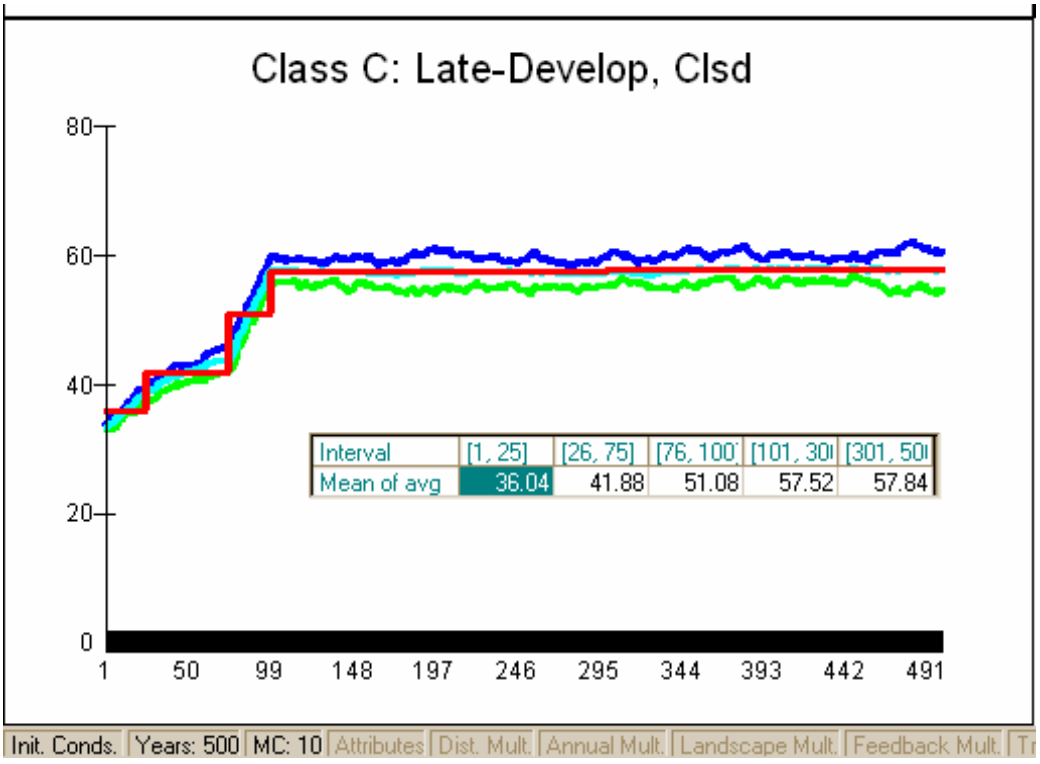
VDDT File Documentation

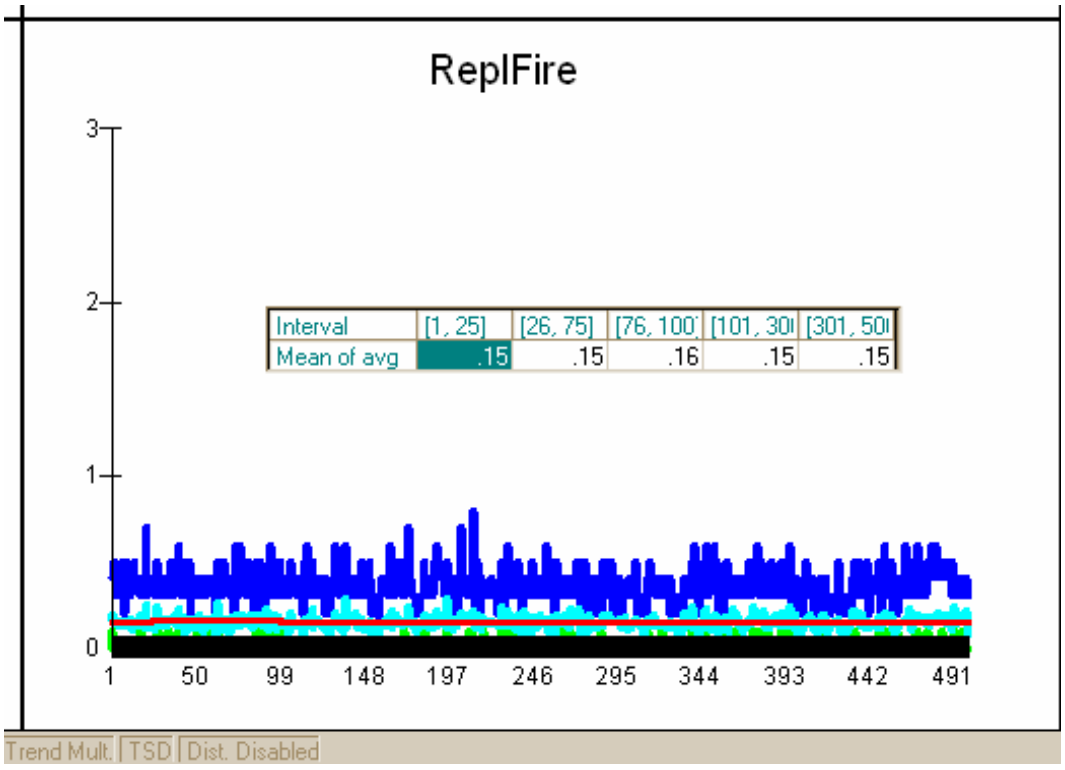
Assumptions: Patch-size scale is single-tree canopy gaps.
Native American fire was considered but was not determined to be a significant factor.

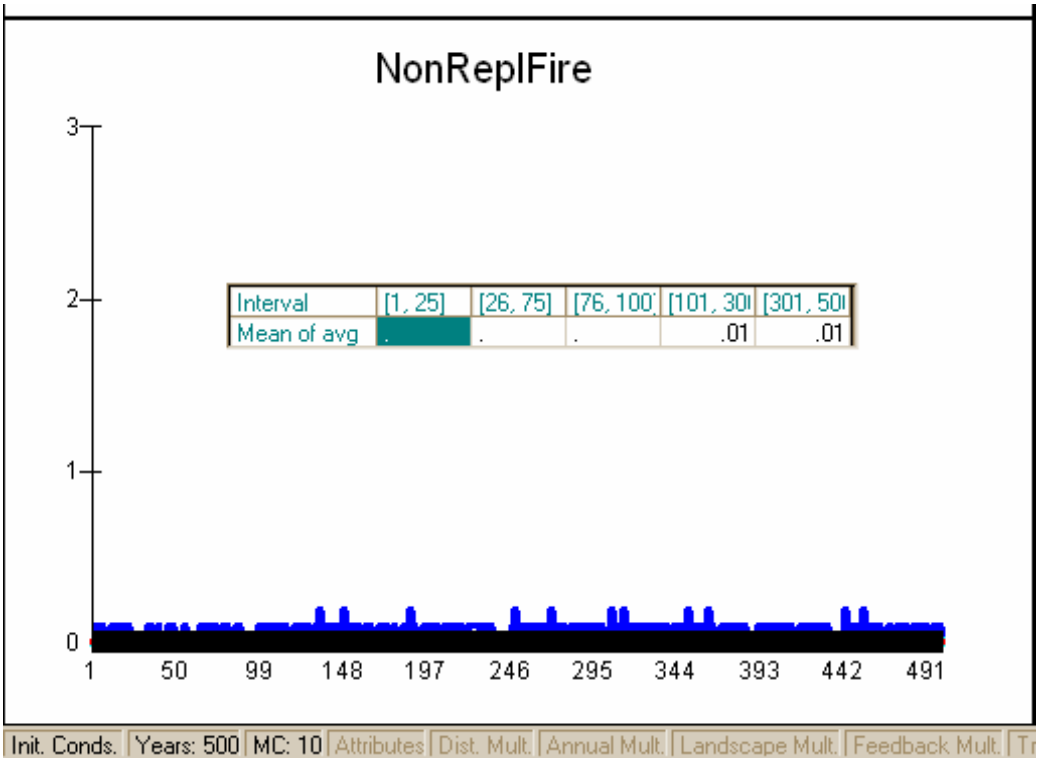

Vegetation Dynamics Development Tool
File Diagram Variation Attributes Run Model Results Help
Successional Pathway Diagram - NRV_Default
All class changes, All pathways
Status
PVT: NRV_Default
SCN: NHDW2.SCN
REG:Nati
PRJ:
Unmodified
Mid-Deve
25-99
B CLS
Early-Dev
0-24
A PSF
Late-Dev
100-
C CLS

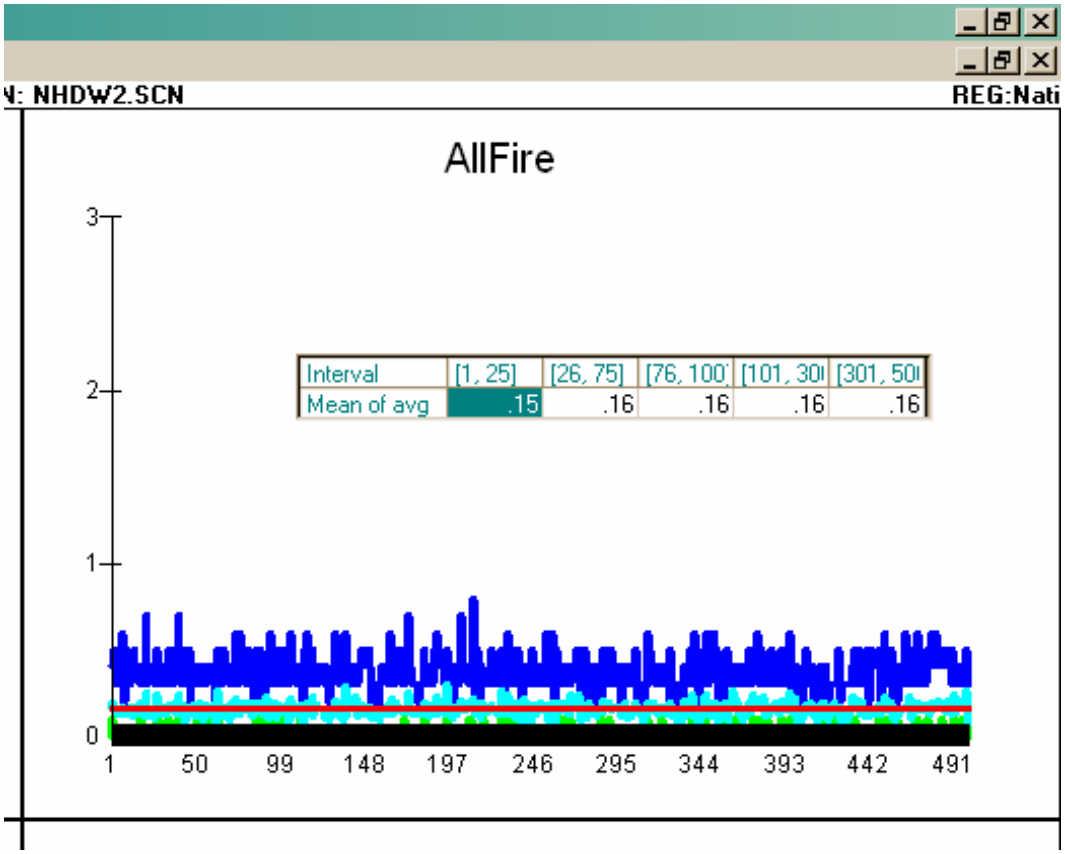

Vegetation Dynamics Development Tool - [% Pixels in Class (Avg, Min, Max)]
File Diagram Variation Attributes Run Model Results Help
PVT: NRV_Default
SCN: N
Class A: Early-Develop, PstRpl
Interval [1, 25] [26, 75] [76, 100 [101, 30 [301, 50
Mean of avg 21.71 11.95 11.94 12.09 11.92
80
60
40
20
0
1 50 99 148 197 246 295 344 393 442 491


N: NHDW2.SCN
REG:Nati
Class B: Mid-Develop, Clsd
80
60
40
20
0
1
50
99
148
197
246
295
344
393
442
491
Interval
[1, 25]
[26, 75]
[76, 100
[101, 30
[301, 50
Mean of avg
42.15
46.07
36.88
30.29
30.14


Class C: Late-Develop, Clsd
80
60
40
20
0
1
50
99
148
197
246
295
344
393
442
491
Interval
[1, 25]
[26, 75]
[76, 100
[101, 30
[301, 50
Mean of avg
36.04
41.88
51.08
57.52
57.84
Init. Conds.
Years: 500
MC: 10
Attributes
Dist. Mult.
Annual Mult.
Landscape Mult.
Feedback Mult.


ReplFire
3
2
1
0
Interval | [1, 25] | [26, 75] | [76, 100 | [101, 30 | [301, 50
Mean of avg | .15 | .15 | .16 | .15 | .15
1 50 99 148 197 246 295 344 393 442 491
Trend Mult. | TSD | Dist. Disabled


NonReplFire
3
2
1
0
Interval | [1, 25] | [26, 75] | [76, 100 | [101, 30 | [301, 50
Mean of avg | . | . | . | .01 | .01
1 50 99 148 197 246 295 344 393 442 491
Init. Conds. | Years: 500 | MC: 10 | Attributes | Dist. Mult. | Annual Mult. | Landscape Mult. | Feedback Mult.


N: NHDW2.SCN
REG:Nati
AllFire
3
2
1
0
Interval
[1, 25]
[26, 75]
[76, 100
[101, 30
[301, 50
Mean of avg
.15
.16
.16
.16
.16
1
50
99
148
197
246
295
344
393
442
491